February 2016

Local Action For Global Coral Reef Conservation

Highlights of a 6-Year Partnership Between The Nature Conservancy and the NOAA Coral Reef Conservation Program

The Nature Conservancy
Protecting nature. Preserving life.

NOAA CORAL REEF CONSERVATION PROGRAM

photo: Carlton Ward

Local Action For Global Coral Reef Conservation

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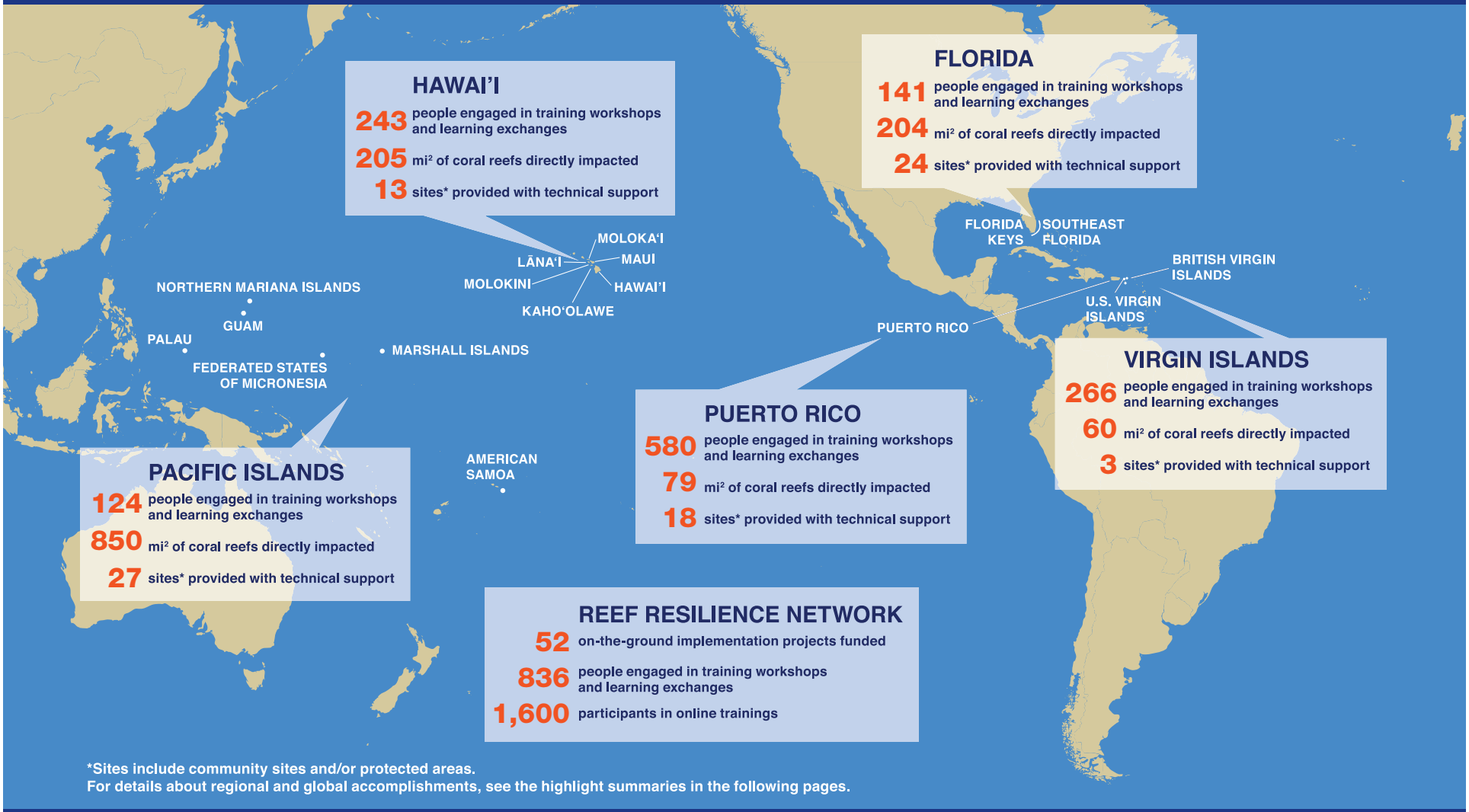

*Sites include community sites and/or protected areas.
For details about regional and global accomplishments, see the highlight summaries in the following pages.

The Nature Conservancy, NOAA Coral Reef Conservation Program, and seven US coral reef jurisdictions completed a $10 million six-year partnership that supported the effective management and protection of coral reefs. Efforts focused on providing guidance in planning and science as well as their on-the-ground application. Successful approaches were then expanded through global capacity building activities for coral reef managers.

FLORIDA:
Local Action for Global Coral Reef Conservation

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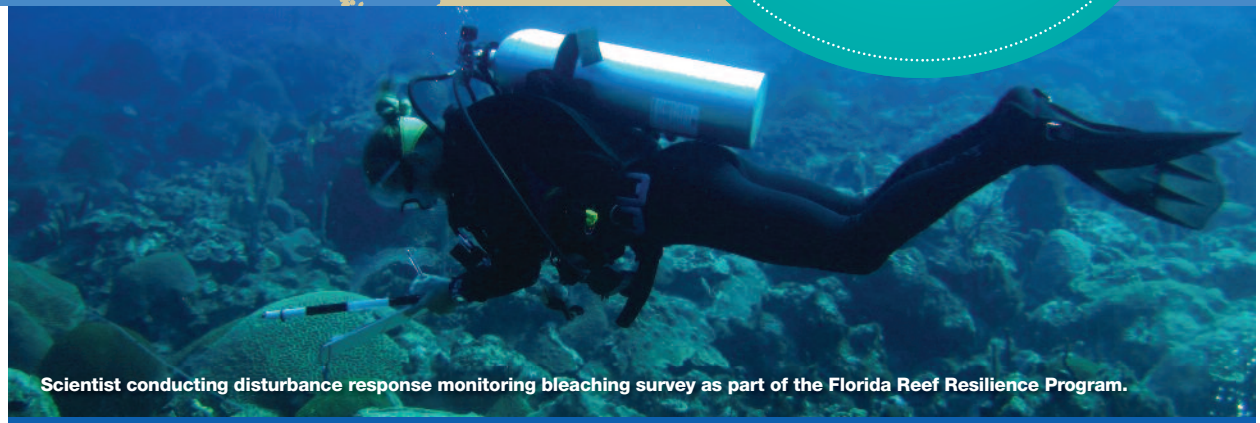
WHERE WE WORK

Florida's bank-barrier reef system supports 1,400 species of marine plants and animals, including more than 40 species of coral and 500 species of fish. This chain of individual reefs stretches from the remote Dry Tortugas, up through the areas offshore of the counties of Monroe, Miami-Dade, Broward, Palm Beach and Martin County. These living reefs are as much a part of South Florida's cultural landscape as they are a foundation of the biological and ecological seascape. From the earliest Floridians, people have derived sustenance from the sea. Today, Florida's coral reefs generate $4.4 billion in local sales and provide 70,400 full- and part-time jobs.

OUR APPROACH

Building on what has worked in other regions, emerging resilience-based strategies from the Great Barrier Reef Marine Park Authority (GBRMPA) and Caribbean are used to shape strategies that engage a diverse set of partners to improve reef health and enhance the sustainability of reef-dependent commercial and recreational enterprises. Using a combination of science and stakeholder engagement, resilience-based management strategies are developed and promoted to enable Florida's coral reefs to withstand and/or adapt to global climate change and local threats.



Scientist conducting disturbance response monitoring bleaching survey as part of the Florida Reef Resilience Program.

SUCCESS STORY:
Collaborative Bleaching Monitoring and Communication

2014 was the most severe bleaching year recorded since Florida's Reef Resilience Program (FRRP) Disturbance Response Monitoring (DRM) surveys began in 2005. The partnership supported coordination between scientists from 13 partner agencies to complete 172 surveys documenting this event. Support was provided for coordination with NOAA's National Coral Reef Ecosystem Monitoring Program (NCREMP) during the first year of surveys to share survey sites, data, protocols, permits, and surveyors. Due to the severity of the bleaching event, post-bleaching surveys were completed at 25 fixed sites to determine impacts. Results are also being used to analyze impacts across the Florida Reef Tract.

In 2015, 250 surveys were coordinated allowing documentation of a disease outbreak along the Florida Reef Tract. Data analysis showed that this was the largest disease outbreak in terms of range and impacted corals, documented through ten years of surveys. Strategic communication materials were created and outreach conducted to media in order to raise awareness of the event and impacts to coral reefs. As a result, articles were published locally, as well as in the Washington Post.

FLORIDA: *highlights*

"The Our Florida Reefs (OFR) Community Planning Process is a blueprint model for stakeholder engagement. This multi-year process will obtain stakeholder recommendations for management of southeast Florida's ecologically and economically valuable coral reefs."

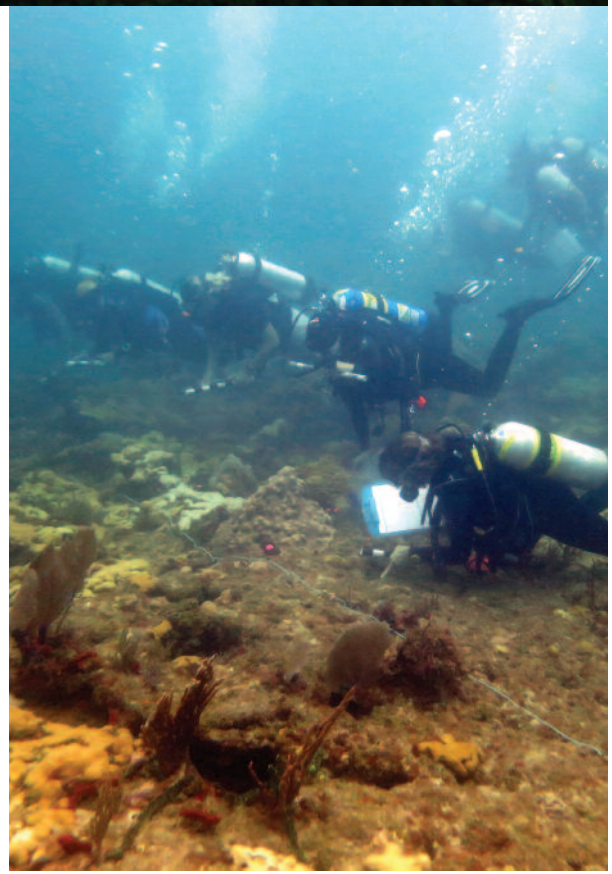
—Joanna Walczak, Florida Department of Environmental Protection

OUR ACCOMPLISHMENTS

Our work has directly benefited approximately **204 mi² of coral reef habitat**. Partnership efforts have supported the comprehensive collection of coral reef monitoring data across the Florida Reef Tract — the only existing cross jurisdictional approach to inform reef management — and trained 141 people in coral reef survey methods, which resulted in 1,121 sites surveyed.

HIGHLIGHTS:

- Provided coordination and technical support to develop, inform and implement two public planning processes to improve the management of Florida's coral reefs.
- **Collected, and provided decision makers and stakeholders access to Reef Tract wide information** to increase effective, comprehensive, science based, on-the-ground management efforts.
- **Provided easy access to coral reef demographic datasets** through the addition of an interactive map for the Florida Reef Resilience Program website (www.frrp.org). The website is the most comprehensive resource of its kind for the region.
- **Conducted a learning exchange between managers and experts** from California and the Southeast Florida Coral Reef Initiative Process Planning Team (SEFCRI PPT). The exchange highlighted California's experience in implementing the California Marine Life Protection Act and provided valuable recommendations for the SEFCRI public process to engage the broad community in planning for the future of Florida's coral reefs.
- **Trained sixteen practitioners on the technical aspects of utilizing MARXAN software** to inform decisions on resource management and marine planning. Training participants represented the State of Florida's Coral Reef Conservation Program, Pennekamp State Park, Nova Southeastern University, University of Miami, and NOAA Coral Reef Conservation Program.



Florida Reef Resilience Program survey training.

FLORIDA: *highlights cont...*

■ **Developed "The Florida Reef Tract Coral Bleaching Response Plan"** to provide a strategic approach for monitoring bleaching and other events, and protocols for early warning, impact assessment, communications and management actions.

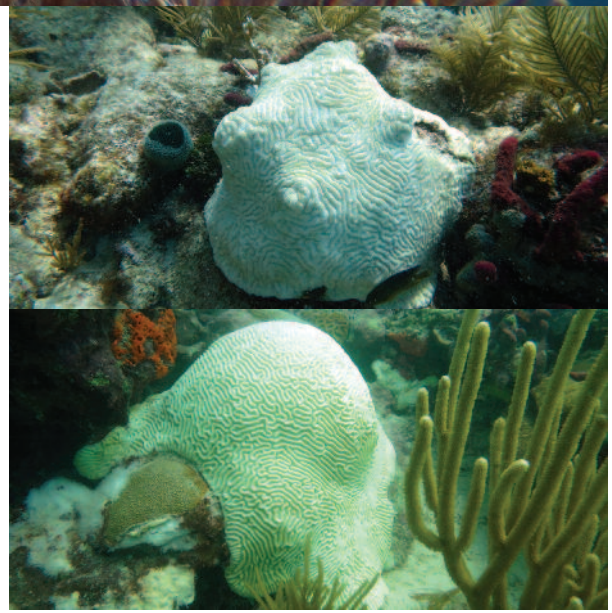
• **Thirteen survey teams of scientific divers conducted more than 230 coral reef surveys annually to monitor and assess bleaching.** In 2014, survey results showed severe bleaching from Dry Tortugas through Biscayne, making it the most significant coral bleaching event since the Florida Reef Resilience Program began in 2005 *(See "Success Story").*

• **Additionally, researchers from four organizations completed surveys at fixed sites to determine post-bleaching impacts.** From January-February 2015, researchers completed surveys at 25 fixed sites. Results showed mild bleaching occurring from the Lower Keys through Broward County, and severe recent mortality within the inshore zones of Upper Keys and Broward-Miami sub-regions.

• **Provided Florida and Caribbean managers with mentorship from Great Barrier Reef Marine Park Authority experts** through a learning exchange to improve bleaching response plans. This resulted in ongoing communication and collaboration between coral reef management agencies in Australia and Florida.

■ **Published the "Climate Change Action Plan for Florida's Coral Reef System: 2010-2015"** in collaboration with reef scientists, managers, and users. The Action Plan guides coordination of reef management across jurisdictions and geographies to increase resilience through active management, enhanced communications, and targeted research.

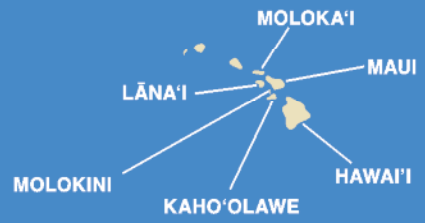
■ **Provided technical assistance to the Government of the Cayman Islands,** with funding from the U.K. government, to apply resilience principles to a process of MPA review and design. This request was a direct result of participation by Florida practitioners in the Reef Resilience Training of Trainers and has led to increases of no-take areas in the Caymans from 15 to 50%.



From top to bottom: Scientist conducting disturbance response monitoring bleaching survey as part of the Florida Reef Resilience Program. Bleached *Meandrina meandrites* coral. Bleached *Pseudodiploria strigosa* coral.

HAWAIʻI:
Local Action for Global Coral Reef Conservation

Highlights of a 6-Year Partnership Between The Nature Conservancy and the NOAA Coral Reef Conservation Program



The Nature Conservancy, NOAA Coral Reef Conservation Program, and seven US coral reef jurisdictions completed a $10 million six-year partnership that supported the effective management and protection of coral reefs. Efforts focused on providing guidance in planning and science as well as their on-the-ground application.

WHERE WE WORK

Hawaiʻi's coral reefs and nearshore waters are home to more than 7,000 forms of marine life. About 33% of corals and 25% of all other marine organisms living in Hawaiʻi are found nowhere else in the world. The islands of Hawaiʻi and Maui Nui – which includes Maui, Molokaʻi, Lānaʻi, Molokini, and Kahoʻolawe –include some of the healthiest coral reefs in the State. On these islands, community groups are reinvigorating place-based management to rebuild fisheries and maintain the clean, clear waters upon which they and the coral reefs depend.

OUR APPROACH

In Hawaiʻi, coral reef conservation depends on local community and state partners' ability to protect and sustainably manage marine resources. We work with local communities to improve marine resource management because we know that empowered communities will help ensure that conservation results will endure.We provide organizations and agencies with technical support in science, planning, strategic communications, and policy to effectively manage marine resources. Our collective conservation work is grounded in Hawaiʻi's rich tradition of resource knowledge and management and is accessible and participatory. This approach has resulted in increased community capacity and public support for improved marine resource protection and management.

Inspired by the united efforts and successes of their counterparts in Fiji, six community groups from Maui, Molokaʻi, and Lānaʻi formed the Maui Nui Makai Network to share experiences, learn from each other, and harness collective action in pursuit of collaborative, community-based management of marine resources.

SUCCESS STORY:

Reviving Tradition, Restoring Connections

Hawaiian values of mālama, kuleana, and laulima—preservation, responsibility, and cooperation—resulted in skillful stewardship of land and sea. These same values are driving conservation efforts across the state today, leading community groups to work together to improve management of marine resources in a way that honors their kūpuna (ancestors), and the cultural and traditional practices of their places.

Until recently, many of these community groups were working in isolation and progress for meaningful protections had been slow. This changed after representatives from Fiji's Locally-Managed Marine Area Network visited and shared their experiences. Inspired by the united efforts and successes of their counterparts in Fiji, six community groups from Maui, Molokaʻi, and Lānaʻi formed the Maui Nui Makai Network to share experiences, learn from each other, and harness collective action in pursuit of collaborative, community-based management of marine resources. With a governance framework and strategic plan in place, network members are reviving pono (responsible) fishing practices shaped by Hawaiian values and traditions, managing sediment and runoff from the land, and securing support for their efforts from their neighbors, lawmakers, and other stakeholders.

Demonstrating the effectiveness of laulima, the Maui Nui Makai Network reignited a movement for local collective action, inspiring more than a dozen community groups in West Hawaiʻi to establish the regional Kai Kuleana and Hui Loko networks. These local networks, together with the statewide E Alu Pu Network, are supporting each other's efforts and collectively addressing shared priorities like advancing co-management of marine resources, improving water quality, and removing invasive species. Working in partnership with state and federal agencies, these leaders are restoring connections among communities, as well as with the land and sea.

HAWAI‘I: *highlights*

“The network is sparking a movement for collective action in Maui Nui, restoring connections among communities, as well as with the land and sea.”

—Emily Fielding, The Nature Conservancy’s Maui Marine Program Director

OUR ACCOMPLISHMENTS

Our work has directly benefited approximately **205 mi² of coral reef habitat** at 13 sites. Partnership efforts supported 14 organizations, directly and through regional networks, provided training and technical assistance for 243 individuals, and developed 10 new management plans to maintain and improve coral health.

HIGHLIGHTS:

- **Convened the Maui Nui Makai Network,** a group of six community groups representing over 20 mi² of marine area, and facilitated bi-annual meetings resulting in a governance framework, strategic plan, budget, intellectual property rights agreement and numerous capacity-building trainings.
- **Engaged over 700 people in management efforts.** All six member groups of the Network are promoting best practices for fishing based on traditional Hawaiian values, conducting community-based monitoring, abating priority threats, and three groups are seeking formal designation as Community-Based Subsistence Fishing Areas.
- **Provided communications and technical support for three administrative rule requests** for community groups on two islands, Maui and Moloka‘i, encompassing 12,800 acres of nearshore coral reef habitat.
- **Completed 10 Conservation Action Plans (CAPs)**— a collaborative, science-based approach to identify and preserve conservation targets and measure success. The plans are all being actively implemented, resulting in improved management of coral reef habitat.
- **Developed a Preliminary Invasive Fish Removal Plan** for peacock grouper (Cephalophalus argus) based on a three-year pilot invasive fish removal effort on Hawai‘i Island.
- **Implemented a parentage and larval dispersal project to better manage connectivity along the west Hawai‘i coastline.** Scientists and local fishermen worked to measure the spillover benefits of fully protected areas to adjacent waters through export of larval fish.
- **Completed reef and reef fish baseline monitoring** at seven Maui sites, and established the **most comprehensive baseline in west Hawai‘i.** When scientists reported that one west Maui site had no fish of reproductive size, the community developed an administrative rules proposal to rebuild fish stocks.

Lāna‘i Conservation Action Plan team.

- **Implemented intertidal fisheries monitoring at four sites,** as we work in partnership with community, government, and academic partners to inform long-term, sustainable fishery management of invertebrates, like the prized Hawaiian ‘opihi.
- **Supported two East Maui communities in implementing voluntary no-take areas** for ‘opihi, an endemic Hawaiian limpet, and assisted with research design and data collection to determine the success of the rest areas.

HAWAIʻI: *highlights*

- **Trained community leaders and local youth in traditional ecological knowledge interview techniques,** and helped the community conduct interviews to inform planning and outreach efforts at locally-managed sites on Maui.
- **Conducted scientific and cultural projects** to evaluate hydrology, biology, water chemistry, and ecology at the Kiholo fishpond in west Hawaiʻi with partners. The work included 13 work-days with 319 community volunteers, perpetuating Hawaiian cultural practices and traditions related to coastal and ocean stewardship.
- **Trained 18 Maui Nui Marine Resource Council members in** community-based planning, resulting in the creation of three active community-based management groups.
- **Conducted a two-part learning exchange for policy makers, fishers, and community marine resource managers between Hawaiʻi and Palau.** Thirty community members and government partners traveled between Hawaiʻi and Palau to learn about their natural resource management challenges and successes. As a result of this place-based sharing, both Palau and Hawaiʻi have implemented best management practices from ridge to reef.
- **Convened the Kai Kuleana Network,** eight community groups on Hawaiʻi Island representing more than 50 miles of coastline. Facilitated quarterly meetings to identify learning needs and priorities, which included data collection, strategic communications, fundraising, rulemaking, interpretive programs, education, and restoration.
- **Led multi-agency effort to launch island-wide community-based water quality monitoring program on Maui** to produce usable, quality-assured data for communities, the State Department of Health, and U.S. Environmental Protection Agency.
- **Engaged and trained volunteer citizen scientists** in conducting fish abundance surveys, presence-absence surveys, intertidal invertebrate counts and water quality monitoring, to support community-based management.

From top to bottom: Muʻolea community members posting information on the three-year no-take area for ʻopihi. TNC intern Karin Osuga and staff Emily Fielding and Roxie Sylva at the East Maui Taro Festival. Maui Nui Makai Network past and present chairs, Scott Crawford, Jay Carpio and Ekolu Lindsey.

PACIFIC ISLANDS:
Local Action for Global Coral Reef Conservation

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WHERE WE WORK

Coral reef conservation efforts are underway in American Samoa, the Commonwealth of the Northern Mariana Islands (CNMI), the Federated States of Micronesia (FSM), the Republic of the Marshall Islands (RMI), the Republic of Palau, and the U.S. Territory of Guam. Spanning 2.6 million mi² – 5% of the Pacific Ocean – this area is home to biodiverse marine and coastal habitats with over 1,300 fish species and over 480 coral species. Natural resources in this region support more than 550,000 people, with annual benefits from coral reefs alone valued at $800 million. In response to increasing pressures from climate-related impacts and locally induced human impacts, Pacific Islanders have begun efforts to blend traditional conservation practices with modern methods to protect these natural resources.

OUR APPROACH

In American Samoa and Micronesia, coral reef conservation is advanced by providing technical and financial assistance to support the management efforts of government, non-governmental organizations, and community partners. To build on conservation momentum in the region, activities are conducted within the framework of the Micronesia Challenge, a commitment to conserve at least 30% of nearshore marine resources and 20% of terrestrial resources by 2020. Partnership efforts have focused on fostering shared learning among local partners through exchanges and trainings to boost the effectiveness of protected areas, developing site-based conservation action plans, supporting strategic planning and board development, and conducting effectiveness assessments.

Joe and Jesse Quinata promoting land and marine conservation as part of the community's cultural heritage.

SUCCESS STORY:
A Learning Exchange Inspires Brothers to Promote Sustainable Fishing in their own Waters

Jesse and Joe Quinata are brothers who grew up in Umatac, Guam, on ranch land that has been in their family for generations. They have fished their whole lives and seen the ocean in Guam change. "People don't use the same practices," Jesse explains, "or fish for the same reasons…Fishing on Guam now is economic." When the brothers go fishing, they catch about two fish in four hours—not like the old days. Joe dreams of teaching his children, and their children, how to fish. He wants to pass along the proud secrets of his elders.

Jesse and Joe attended a learning exchange with Palau. There, the brothers had the opportunity to visit one of the many conservation areas. Bobbing offshore in a small fishing boat, the group spoke about conservation as they caught one fish after another. A Palauan host explains, "The real fisherman is not the fisherman who catches a lot of fish. It's the fisherman who understands the seasonal changes, the ethic of conservation, and the whole process about fishing." Joe reflects on how fishing in Palau feels different: "In Palau, fishermen value traditional ways. They've been conserving fish for years. Because of that, they have plenty."

Inspired not only by Palau's abundance, but also by the resource management approach used in Palau, Jessie and Joe created a conservation organization for their village. The Humåtak Community Foundation was developed to promote land and water conservation as part of the community's cultural heritage. "We're here today to celebrate what we have," Joe says, "and work toward conserving for our kids and our kids' kids." Joe points toward a lone fisherman standing knee-deep in the bay where the brothers grew up. "I want to be able to have my kids do what that man's doing…fishing."

Adapted from Into the Islands with Dan Ho, Season 1: "Pilot" and "Episode II," available at http://intotheislands.com/

PACIFIC ISLANDS: *highlights*

"As a village on Saipan that considers itself a fishing community, there has been good feedback received thus far from Tanapag fishermen, parishioners and district legislators in terms of increasing their involvement and input in the management of their natural resources. There is much potential in achieving a level of co-management that works for the community and regulatory agencies alike."

—Kodep Ogumoro-Uludong, Rare Pride Campaign Manager

photo: Courtney Couch

OUR ACCOMPLISHMENTS

Our work has directly benefited approximately **850 mi² of coral reef habitat**. 124 people were engaged in training workshops and learning exchanges and 27 sites have been provided with technical support.

HIGHLIGHTS:

- **Held the Second Micronesia Challenge Socioeconomic Measures Workshop**, in collaboration with partners, which resulted in finalizing the indicators for the Socioeconomic protocol. Participants also developed a plan for how to move socioeconomic efforts forward over the next 1-5 years and provided input on how to further refine the MPAME tool.

- **Developed the Micronesia Challenge (MC) Scorecard.** Based on recommendations from participants of the MC Socioeconomic Measures Workshop, a draft scorecard was developed to measure the effectiveness of the MC.

- **Facilitated an Organizational Management Workshop for the American Samoa Coral Reef Advisory Group (CRAG).** Members and Staff assessed how CRAG functions and developed a plan for improving how CRAG supports coral reef management in American Samoa.

- **Trained 19 people from American Samoa in data analysis** to improve the analytical expertise within resource monitoring and management programs in American Samoa.

- **Completed and formally adopted Conservation Action Plans (CAP)—** a collaborative, science-based approach to identify and preserve priority biodiversity and measure these efforts—at 27 sites. Plan implementation, which results in improved management of important coral reef affiliated areas, has begun in eight sites.

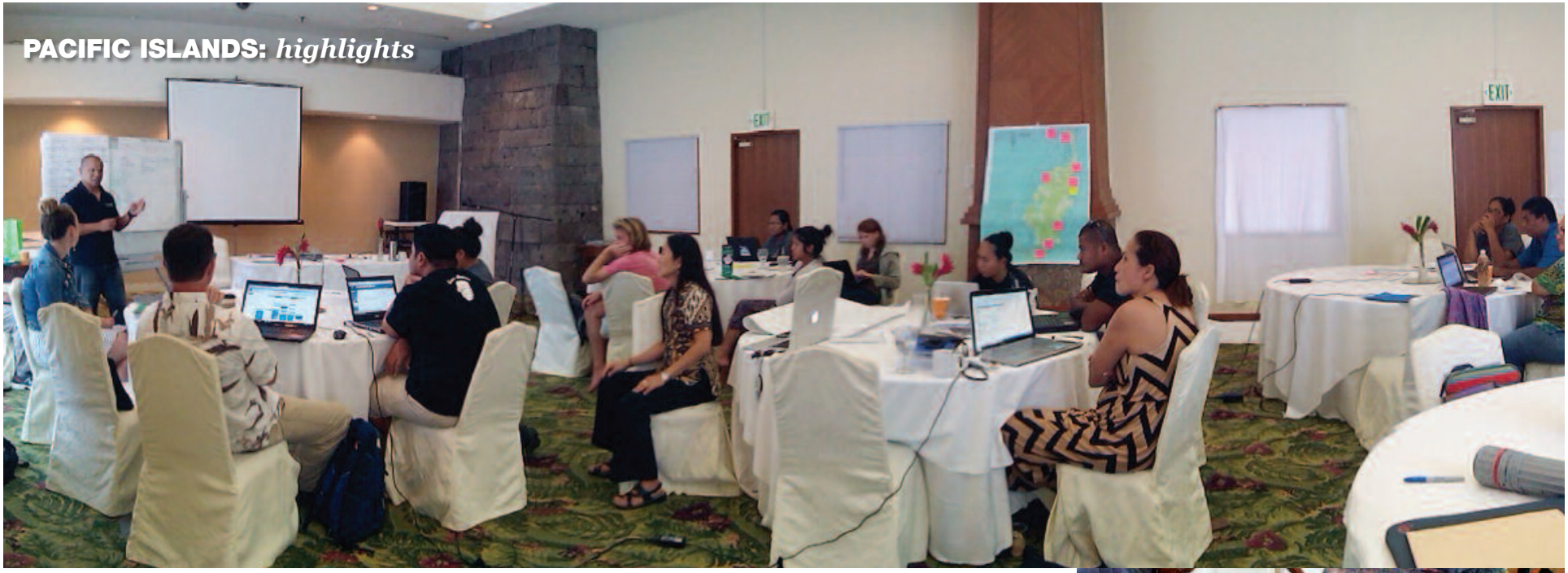
- **Hosted collaborative workshop on reef resilience principles—** the first of its kind for American and Western Samoa—for 32 individuals representing 13 groups from these islands. The workshop sparked a productive discussion on how an MPA network could be created in the Samoan archipelago and developed recommendations to more efficiently implement the Two Samoas Initiative.

An important coral reef site where a Conservation Action Plan has been completed.

- **Held the 2nd Micronesia Challenge Measures Working Group meeting,** in collaboration with partners, which resulted in the development of monitoring protocols to measure the ecological effectiveness of protected areas. All 13 Palau Protected Areas Network (PAN) sites, FSM (Yap, Chuuk, Pohnpei, and Kosrae) and the Marshall Islands are now using these protocols for their MPAs.

- **Trained thirty partner coaches on the Open Standards for the Practice of Conservation and the CAP process.** Following this training, coaches led management planning and CAP workshops to develop four new CAPs in the region.

PACIFIC ISLANDS: *highlights*



■ **Coordinated and implemented learning exchanges to share successes and lessons learned** between partners, foster better understanding of community-led marine stewardship and catalyze on the ground action.

- **Participants from Pohnpei and Yap visited Palau to learn about watershed partnerships, through which several terrestrial managed areas have been established.** Based on lessons learned from the Belau Watershed Alliance, a network of Palau communities engaged in watershed management, Yap participants rallied their eight villages to establish the Tamil Resources Conservation Trust, which has since developed a management plan and established an MPA.
- **Managers and environmental practitioners from Micronesia visited American Samoa to share their experience implementing the Micronesia Challenge.** Participants were exposed to the concept of MPAs as mixed-use areas, community-based management approaches, and the value of incorporating traditional knowledge into the management process.

■ **Designed the Marine Protected Areas Management Effectiveness (MPAME) tool to standardize effectiveness evaluation of site management and document the accumulated impacts of protected sites.** Results from the Pacific jurisdictions are used to produce a scorecard, tracking the progress of the Micronesia Challenge. Eight sites have completed MPAME evaluations, and the Palau Protected Areas Network (PAN) has adopted the tool to evaluate all 13 of its sites.

■ **Developed the Micronesia Finance and Administration-Operations Network (MFAN)** to strengthen conservation organizations in the region through enhancing the management skills of operations staff. Individuals from 16 organizations participated in a workshop to teach financial and administrative skills.

From top to bottom: Discussions on development of the Micronesia Challenge Scorecard in Guam. Monitoring protocols are used to measure the ecological effectiveness of marine protected areas.

PUERTO RICO:
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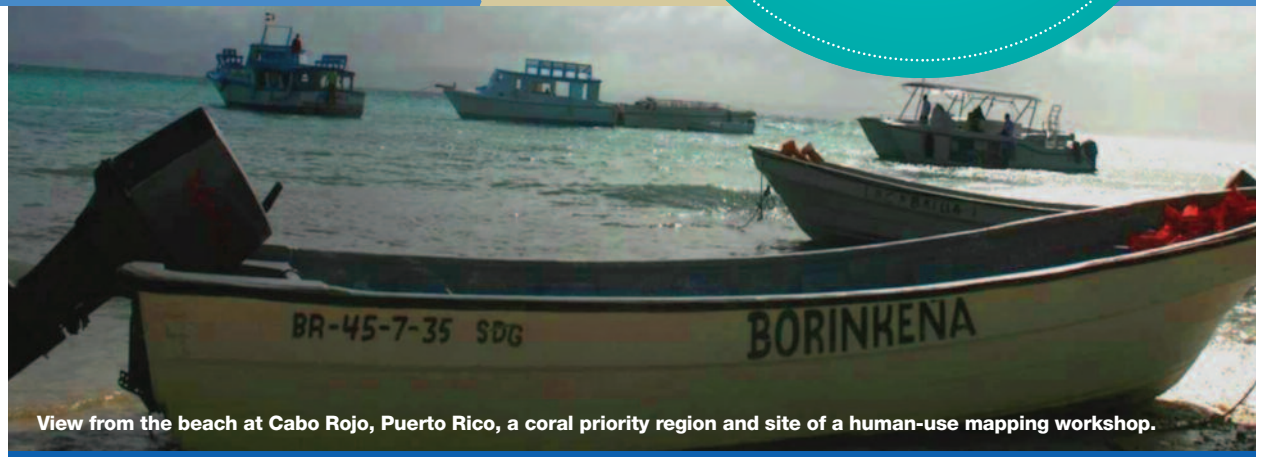
WHERE WE WORK

Puerto Rico is a mountainous archipelago in the northeastern Caribbean that includes the main island of Puerto Rico and a number of smaller islands. The coastline is home to more than 1,930 mi² of shallow coral reef ecosystems that include mangrove forests and seagrass beds. These habitats support more than 677 species of fish and 237 species of coral, however over 93% of coral reefs are threatened due to sedimentation, algal growth, overfishing, bleaching and climate change.

OUR APPROACH

Coral reef conservation efforts in Puerto Rico build on successes in neighboring Caribbean islands and focus on fostering collaboration among stakeholders at the federal, regional, and local levels to develop a functional, effective system of sustainably managed Marine Protected Areas (MPAs). Local government and communities are provided with technical and coordination assistance in science, MPA effectiveness and the development of strategies to integrate climate considerations into planning and increase the effectiveness of coral reef management efforts.



View from the beach at Cabo Rojo, Puerto Rico, a coral priority region and site of a human-use mapping workshop.

SUCCESS STORY:
Human-Use Mapping Leads to Conservation Action

The Cabo Rojo Coral Priority Region in southwest Puerto Rico includes three marine protected areas and is well known for commercial fishing. More recently, the region has also become a popular tourism destination. A lack of understanding of when and where human uses were taking place in the region was identified as a key barrier to effective management.

Through a collaborative mapping and conservation action planning process with local stakeholders, including fishers, several strategies – such as the need for mooring buoys and additional fishing regulations – were identified to reduce conflict and protect coral reefs. As a result, the Department of Natural & Environmental Resources is planning for mooring buoy installation, in accordance with the new human-use maps to prevent anchor damage to coral reef resources. Through the mapping and action planning process, information about an unregulated shark pup fishery in the area was provided, which resulted in the proposal of the first action to protect sharks in Puerto Rico. These new regulations to create a no-take shark sanctuary are supported by both recreational and commercial fishers in the region, and are currently under government review.

PUERTO RICO: *highlights*

"The PEPCO program has been an enormous success, improving the relationship between DNER and the fisheries community to the point that they have become advocates of improved fisheries management and closures that benefit fish stocks."
—Daniel Matos, Fisheries Research Laboratory, Department of Natural and Environmental Resources (DNER)

OUR ACCOMPLISHMENTS

Our work has directly benefited approximately **79 mi² of coral reef habitat**. Partnership efforts have resulted in the training of 36 people in ecosystem-based adaptation and 544 commercial fishers in data reporting; provided on-site management assistance to eighteen coral reef sites; and created the first-ever management plan for the Cabo Rojo Coral Priority Region.

HIGHLIGHTS:

- **Planning support for DNER was provided through the development of a white paper to guide coral reef management efforts.** The paper included a summary of the legal framework, case studies, and recommendations to guide coral program development.
- **Human use maps and a GIS geodatabase were developed for Culebra Island** to identify human stressors to coral reefs. The spatial information developed will support integrated coastal zone management efforts in Puerto Rico.
- **Puerto Rico joined the Caribbean Challenge Initiative (CCI) by committing to conserve at least 20% of nearshore marine and coastal environments in national marine protected areas systems by 2020** and create a National Conservation Trust Fund. TNC staff served as an advisor to the Puerto Rican CCI delegation, provided technical support to draft the Puerto Rico Declaration, participated in key meetings leading to a summit, and hosted the first ministerial CCI meeting.
- **Completed the Rapid Assessment and Prioritization of Protected Area Management (RAPPAM)** for Puerto Rico's protected area system in collaboration with the Department of Natural and Environmental Resources (DNER) Reserves and Refuges staff. The assessment was the first-ever system wide evaluation of protected area management in Puerto Rico; taking the assessment into consideration, the DNER has begun a process of agency restructuring and staff reallocation to increase protected area management effectiveness.
- **Trained eight coral reef managers in Conservation Action Planning (CAP)** who directly applied these skills to continued action planning for four sites: Cabo Rojo, Puerto Rico; Cane Garden Bay, British Virgin Islands (BVI); St. Thomas East End Reserves and the St. Croix East End Marine Park, U.S. Virgin Islands (USVI).

The Northeast Ecological Corridor Reserve is a land-sea reserve network home to diverse marine ecosystems.

- **Working in partnership with the local NGO Protectores de Cuencas, the Guánica State Forest web presence was created.** Protectores de Cuencas has signed a co-management agreement with the DNER for the Guánica State Forest in which many management and sustainable financing aspects are included in addition to hosting and maintaining the Guánica State Forest Web presence.

PUERTO RICO: *highlights*

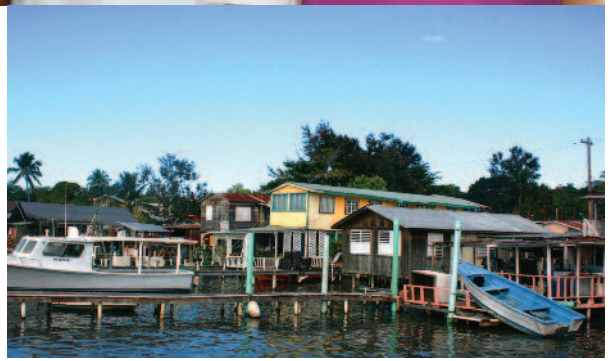
■ **Developed and coordinated the Puerto Rico Natural Protected Areas Congress,** (NPAC), the first-ever opportunity for local marine and terrestrial managers to convene and share best management practices. The Puerto Rico Music Conservatory served as the host and venue for the 2nd Puerto Rico NPAC held August 28-29, 2014. The 2 day event had 40 oral presentations and over 40 poster presentations of the latest science and management specific to Puerto Rico's protected areas with the support of over 30 NGOs, federal and local agencies, and Puerto Rico and U.S. based universities. Nearly 300 people were in attendance, making this one of the largest gatherings of local stakeholders in recent history.

■ **Supported the creation of the Puerto Rico Climate Change Council (PRCCC)** to support the incorporation of climate adaptation and vulnerability considerations into planning. The Council is made up of 170 interdisciplinary collaborators and has been designated by the governor as the official body to advise the government on climate change policy.

■ **Provided technical support to develop the first document to assess Puerto Rico's vulnerability to climate change,** the "Puerto Rico State of the Climate Report." Based on this report, the governor of Puerto Rico issued five executive orders that mandate all public agencies to create adaptation plans for public infrastructure.

■ **More than 30 people attended an Ecosystem-based Adaptation Integration Workshop,** which was held in collaboration with the PRCCC and the recently formed Caribbean Landscape Conservation Cooperative. As an initial result, a committee was created within the Climate Change Council to address ecosystem-based adaptation to climate change.

■ **Trained three enforcement officers from the BVI, USVI, and Puerto Rico,** to effectively protect coral reefs at the WildAid Global MPA Enforcement Conference.



Top to bottom: Community fishery leaders and TNC staff meet to discuss fisheries management and conservation in Puerto Rico's West Coast. Puerto Real, Cabo Rojo, the largest fisher town in Puerto Rico.

VIRGIN ISLANDS:
Local Action for Global Coral Reef Conservation

Highlights of a 6-Year Partnership Between The Nature Conservancy and the NOAA Coral Reef Conservation Program

The Nature Conservancy, NOAA Coral Reef Conservation Program, and seven US coral reef jurisdictions completed a $10 million six-year partnership that supported the effective management and protection of coral reefs. Efforts focused on providing guidance in planning and science as well as their on-the-ground application.

WHERE WE WORK

The U.S. Virgin Islands (USVI) and the British Virgin Islands (BVI) coral reef, mangrove, and seagrass habitats nurture 45 species of coral and more than 400 species of fish. These coral species are under threat from a variety of impacts including vessel groundings, overfishing, point and non-point source pollution, and increased ocean temperatures that cause bleaching and lionfish invasion. With a land area of only 134 mi² in the USVI, the annual economic value of reef-related tourism, recreation, and commercial fisheries is $147 million.

OUR APPROACH

Coral reef conservation efforts enable greater federal, regional, and local collaboration to directly reduce threats to coral reefs. Expertise provided in policy development, management planning and strategy implementation, as well as incorporation of technical ecosystem-based climate change adaptation into local and regional planning efforts, make a tangible difference.

Left to Right: Hostess Sarah showing the Reef Responsible plaque at restaurant Savant, a participating Reef Responsible Restaurant on St. Croix; Chef Mike from Savant prepares Reef Responsible dish.

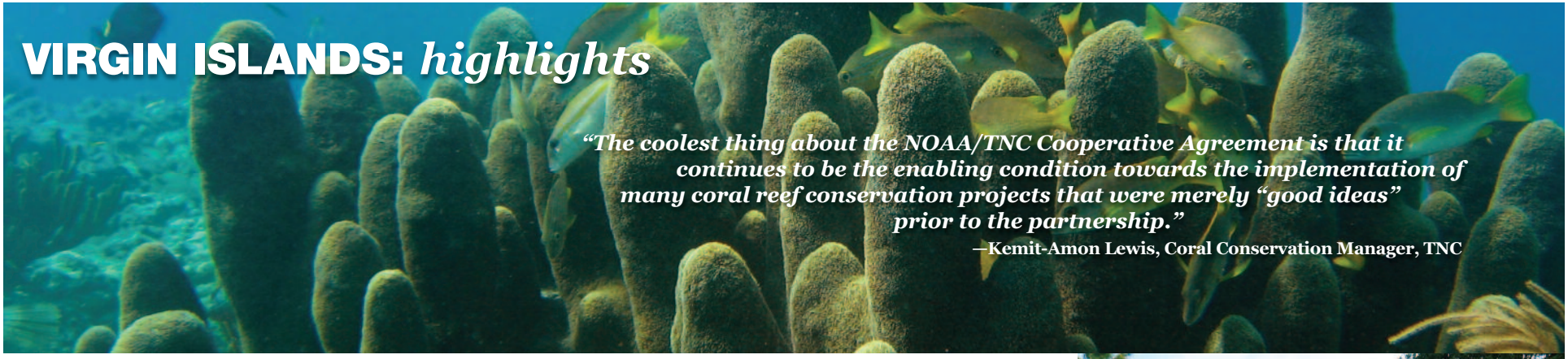
SUCCESS STORY:
Working with Restaurant Owners to Protect Coral Reefs

In the USVI, nine restaurants on St. Croix have joined the Reef Responsible Sustainable Seafood Program to promote healthy reefs and support fishers by purchasing local and responsibly harvested seafood.

To become a participating Reef Responsible Restaurant, owners, chefs, and staff undergo comprehensive training. Participants are provided with outreach materials based on the best available science and are briefed on the negative impacts from the overharvest of herbivorous fishes, which play an important role to remove algae from reefs and provide space for corals to thrive. They also learn about seasonal closures and catch size restrictions, and are introduced to the "Good Choice, Go Slow, and Don't Eat" seafood list. Additionally, demonstrations are provided on how to prepare "good choice" fish like invasive lionfish.

Once the training is completed restaurants are then branded as a Reef Responsible Restaurant, and are celebrated for their commitment through free advertisement. By helping restaurant owners make informed decisions about the seafood they purchase, prepare, and serve, the program works to ensure that both the seafood and the reefs that we depend on today can be enjoyed by generations to come.

VIRGIN ISLANDS: *highlights*



"The coolest thing about the NOAA/TNC Cooperative Agreement is that it continues to be the enabling condition towards the implementation of many coral reef conservation projects that were merely "good ideas" prior to the partnership."

—Kemit-Amon Lewis, Coral Conservation Manager, TNC

OUR ACCOMPLISHMENTS

Our work has directly benefited approximately **60 mi² of coral reef habitat**. Partnership efforts have resulted in the training of 80 individuals, and the completion of eight new plans to directly support coral reef management goals and site-based restoration work.

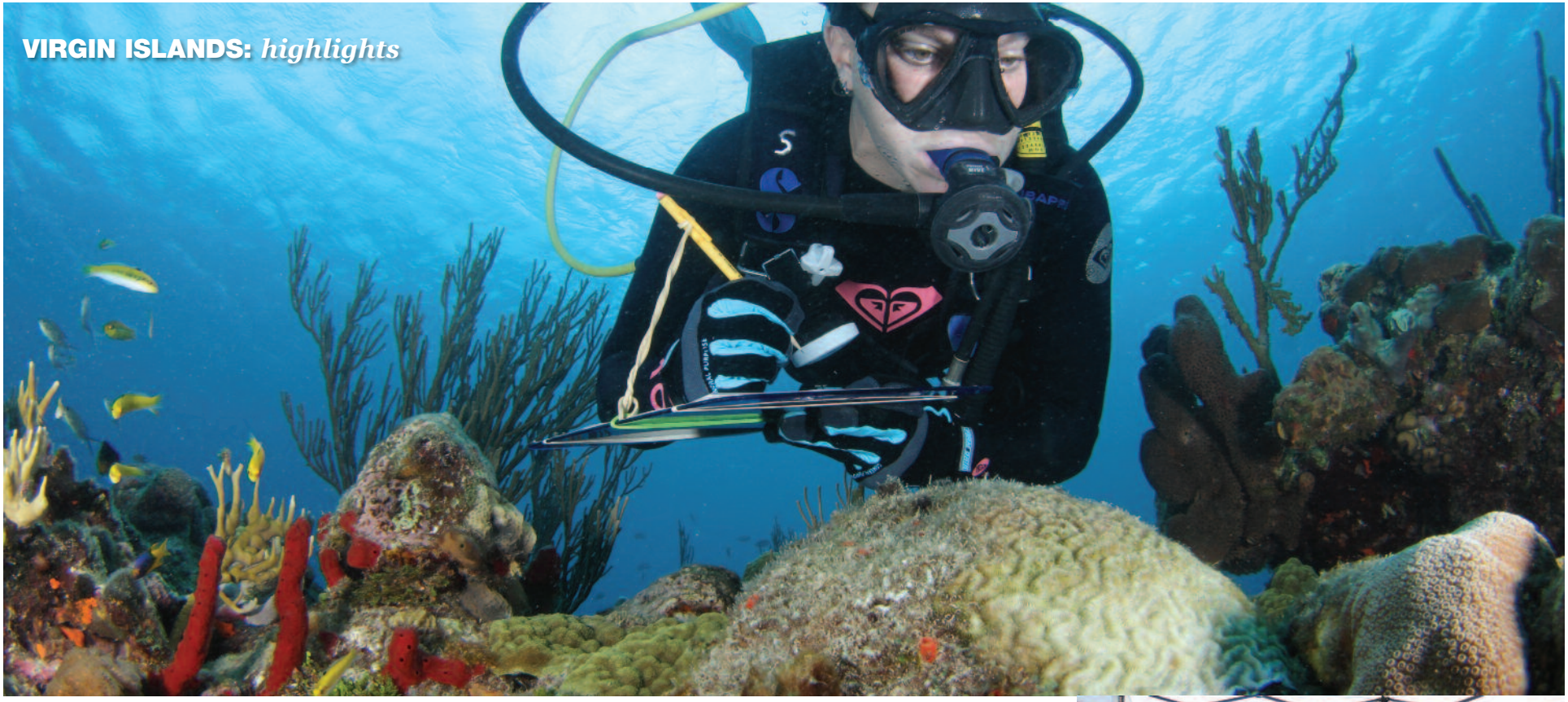
HIGHLIGHTS:

- **Over 15 participating Reef Responsible Restaurants** have been trained and have voluntarily made commitments to improving their best practices with regards to purchasing locally harvested seafood.
- **Completed and shared human use maps for the St. Croix East End Marine Park;** maps were created through a participatory mapping workshop and will be used to inform management efforts.
- **The USVI endorsed the Caribbean Challenge Initiative, with a commitment to conserve at least 20% of the nearshore marine environment in an updated protected areas system by 2020.** Capacity-building and outreach efforts of the partnership were significant factors leading to the commitment.
- **Developed a USVI Sustainable Financing Plan for Protected Areas** with stakeholders, which includes an implementation schedule and commitments from key partners.
- **Created response plans for coral bleaching and vessel groundings,** resulting in the creation of a Bleachwatch program and training of more than 30 volunteers to assess and respond to coral bleaching.
- **Created and updated the Territorial Lionfish Management Plan** to proactively address the threat of lionfish to the health of coral reefs.
- **Facilitated the creation of the Virgin Islands Marine Protected Areas Network (VIMPAN),** a multi-agency coral reef management group, resulting in increased collaboration on reef management efforts in the region.
- **Supported management activities at the St. Thomas East End Reserves (STEER)** to increase management effectiveness and build capacity at the site by conducting a visitor willingness-to-pay study, and fieldwork for watershed assessments, contaminants, and biological monitoring, and developing models to analyze the impacts of sea level rise in the territory.

Friends enjoying seafood bites at Reef Responsible Fish Fry.

- **Provided training and learning exchange opportunities for 195 local resources managers, practitioners, and stakeholders** to improve their skills and knowledge of tools and techniques in spatial planning, geographic information system (GIS), watershed management, enforcement, and the integration of ecosystem-level data into coastal zone planning and policy.

VIRGIN ISLANDS: *highlights*



- **Held a USVI Climate Change Ecosystem-based Adaptation (EBA) Workshop** that facilitated stakeholders in developing strategies to incorporate climate adaptation into disaster response, site-level management, and coastal zone planning resulting in the first climate change policy document in the USVI.
- **Completed a policy review of local coral reef regulations and mandates** and laws on in-water damage of coral reefs to inform local management efforts.
- **Held the Coral Assembly to increase collaboration across the Puerto Rico Bank** (Puerto Rico, USVI, and British Virgin Islands), which gathered 100 managers and practitioners to exchange information and generate strategies for shared initiatives.
- **Facilitated government agencies, builders, and designers to develop solutions to coastal erosion** resulting in the creation of the handbook "Best Management Practices: A Guide for Reducing Erosion in the British Virgin Islands."
- **4,773 elkhorn and staghorn corals were out-planted** to enhance 2.9 km^2 of coral reefs within the St. Thomas East End Reserve and the St. Croix East End Marine Park.
- **Completed a resilience assessment for St. Croix's reefs** to inform managers about response activities and threat reduction priorities.

Top to bottom: Bleachwatch surveys increase capacity for resource managers to identify and respond to bleaching events. Photo: John Melendez. Reef Responsible Committee Member describes the Reef Responsible Program.

Global Capacity Building For Coral Reef Managers

Highlights of a 6-Year Partnership Between The Nature Conservancy and the NOAA Coral Reef Conservation Program

The Nature Conservancy, NOAA Coral Reef Conservation Program, and seven US coral reef jurisdictions completed a $10 million six-year partnership that supported the effective management and protection of coral reefs. Efforts focused on providing guidance in planning and science as well as their on-the-ground application.

WHERE WE WORK

The Reef Resilience Network is a global network for coral reef and MPA managers to share ideas, experiences, and expertise and strengthen members' ability to effectively manage coral reefs threatened by warming seas, bleaching, pollution, and overfishing. The Network has reached 75% of countries and territories with coral reefs through in person and online trainings.

OUR APPROACH

The Reef Resilience Network connects coral reef managers with information, experts, and resources to innovate, accelerate, and leverage solutions for improved global coral reef health. The Network:

- Translates and shares the latest science and management strategies to keep busy managers inspired and in-the-know.
- Connects coral reef managers to each other and experts to share resources and lessons learned that inform and improve management decisions and inspire greater collaborations.
- Supports on-the-ground action by providing training and seed funding to launch education, monitoring, and threat abatement projects.

Marine park managers, fisherman and tourism operators receive training on reef resilience. Photo: Wildlife Conservation Society

SUCCESS STORY: Increasing Resilience-based Management in Madagascar

At a Reef Resilience Training in Tanzania, marine park manager Bemahafaly (Faly) Randriamanantsoa realized that the management plans in Northeast Madagascar did not include the components necessary to support resilience. With support from the Reef Resilience Network, Faly brought together 26 managers, fishermen, tourism operators, and other stakeholders in 2013 for a training about reef resilience, coral bleaching, and how managers can work to reduce impacts to coral reefs. As a result, the group is now incorporating resilience principles and activities into five management plans for marine parks in Madagascar. According to Faly, "Every year, they do monitoring and, step-by-step, they agree to incorporate additional resilience parameters. The training greatly improved relationships between the managers."

Participants found such value in working together that they established a formal committee to monitor bleaching. Local community members who were part of the training continue to monitor the reefs for bleaching events during the annual warm-weather season. The group even set up a Facebook page to share information with one another across different sites. When impacts occur, from bleaching to destructive or illegal fishing, they communicate through Facebook and work together to assess and address the impact. Such stories demonstrate the catalytic power of the Reef Resilience Network, stimulating new partnerships that incorporate the latest science and best management recommendations from around the globe.

REEF RESILIENCE NETWORK: *highlights*

"I applied skills learned during a RR training and information from the toolkit to teach representatives from 9 villages about the importance of careful messaging and communication on the impacts of climate change to coral reefs. I am quite confident that the villagers are comfortable sharing key messages and are spreading them within their villages."

—Jairos Manhenge, Chief Warden, Dar es Salaam Marine Park

photo: Courtney Couch

OUR ACCOMPLISHMENTS

Through the Partnership, the Reef Resilience Network has provided in-person training to more than **836 people from 64 countries and territories** resulting in participant-led trainings for an additional **986 stakeholders**; conducted online training for over **1,600 participants**, and held webinars attended by **1,000 people** resulting in a better informed and networked cohort of coral reef managers.

HIGHLIGHTS:

CONNECT TO INFORM

To connect coral reef managers and practitioners from around the world to each other and to leading experts in coral-related fields, the Network hosts interactive webinars on hot topics in coral reef management. It also hosts the Network Forum, an online member-only discussion forum where managers can share ideas and resources, ask questions, and support each other. Accomplishments include:

- 1000+ managers participated in 29 interactive webinars and connected with experts via the Forum
- 340 managers connected through the Forum
- 34 newsletters were developed and distributed to over 730 members

TRANSLATE AND INSPIRE

To make sure busy resource managers have access to the latest coral reef and reef fishery science and management strategies – and are challenged and inspired by new ideas – the online toolkit puts relevant information at their fingertips. Created and updated by coral reef, fisheries, and climate experts, the toolkit features:

- Synthesized information on science and management tools and techniques
- Searchable summaries of journal articles about resilience science
- Case studies highlighting successful management strategies

Accomplishments include:

- In 2015, more than 9,000 individuals visited the website to read 47+ case studies and 115+ summaries of cutting-edge resilience science articles.
- Synthesis of new science and strategies on coral bleaching, ocean acidification, strategic communications and assessing resilience in the Coral Reef Module.
- Development of a new Coral Reef Fisheries Module with information on stock assessment methods, tools for managing fisheries, and surveillance and enforcement systems.

SUPPORT AND GROW

Coral reef managers need training and support to incorporate resilience concepts into their management strategies. Reef resilience is the science of creating the best conditions possible for coral reefs to thrive, monitoring reef health, planning ahead for predicted impacts of climate change and managing impacts when they occur. The Network stimulates growth and success through training, seed funding, networking, and mentorship. Accomplishments include:

- 800 + managers from 64 countries and territories attended in-person trainings and exchanges that help them apply cutting edge science to resource management and encourage increased knowledge sharing within and across regions
- Engagement of 1,600 + people in mentored and self-paced online courses with both versions available in English, Spanish and French.
- $95,000 in seed funding distributed for resilience projects leading to capacity-building trainings for 1,300+ individuals in 24 countries

REEF RESILIENCE NETWORK: *highlights*

BUILDING CAPACITY

Trainings and Learning Exchanges are designed to share lessons learned on resilience-based management and catalyze on-the-ground action. Through these trainings, managers and practitioners from around the world have:

- Developed or revised bleaching response plans assisted by local and global experts.
- Assessed coral reef resilience and bleaching impacts in the Indonesian Archipelago.
- Applied resilience science to the design of MPA networks.
- Built skills in stakeholder facilitation, strategic communications, and the application of resilience principles.
- Shared challenges and management approaches in island conservation.
- Produced publishable journal and media articles.
- Shared lessons learned in community-based management initiatives.
- Applied new tools for community-based climate adaptation.

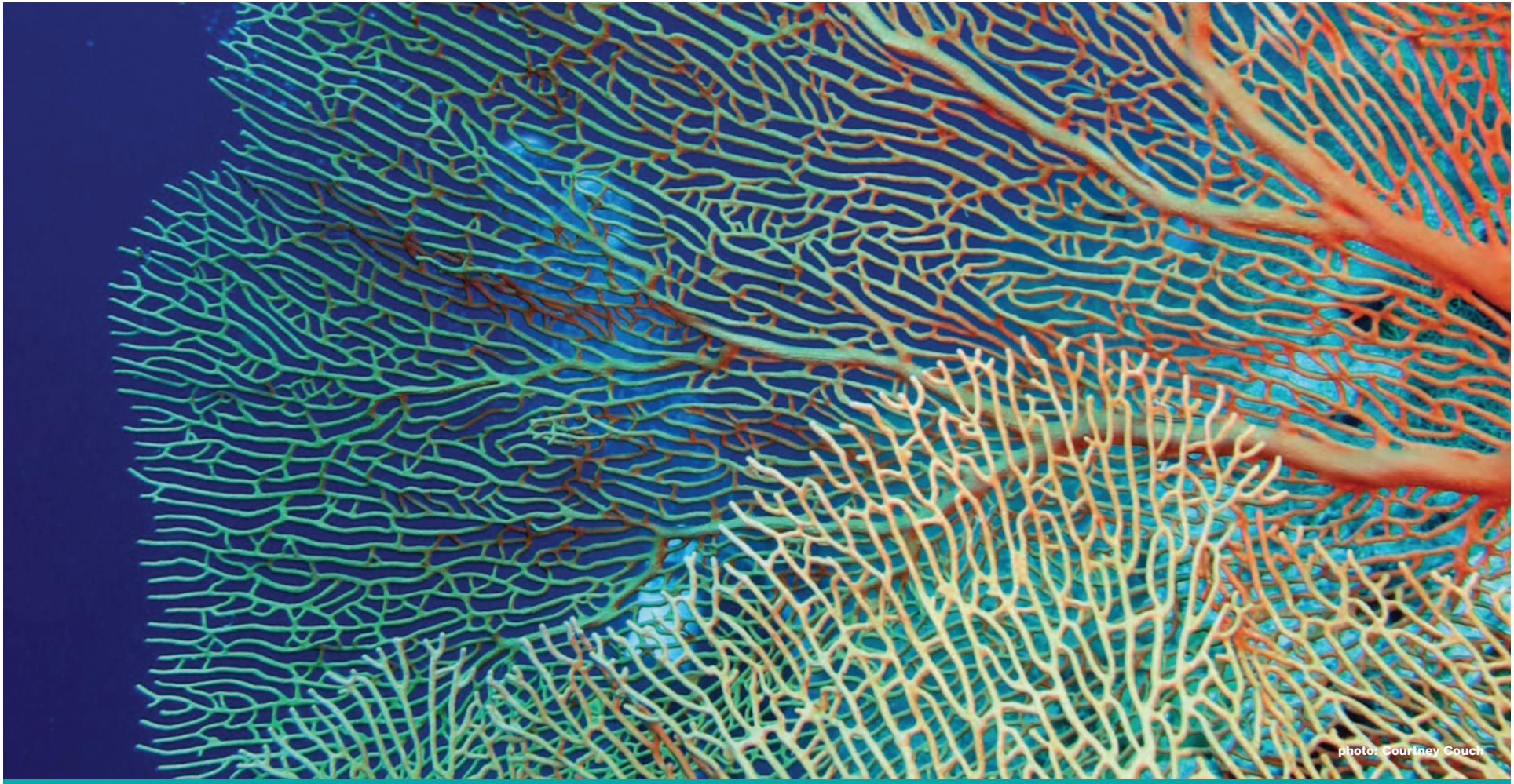
CATALYZING ACTION

Seed funded resilience projects result in on-the-ground action and further reef resilience goals. Project successes include:

- Development and implementation of response plans for coral bleaching, coral disease, and invasive species.
- Application of new reef monitoring programs and protocols to inform resilience-based management strategies.
- Creation of new linkages and increased communication between people and groups managing reefs.
- Creation of a coral restoration area that incorporates resilience-based management principles.
- Development of a new reef resilience program in the U.S. Virgin Islands that has shaped policy, made critical management decisions, and created a coral bleaching monitoring and response plan.
- Incorporation of reef resilience principles into existing spatial management plans to support the long-term health of coral reefs.

Top to bottom: Reef Resilience Training breakout group works on a marine protected area fish connectivity exercise. Caribbean and Pacific managers try a community adaptation activity at a learning exchange in Guam.

- Built the capacity of people at all levels—managers, enforcement personnel, educators, policy-makers, students, community members, fishermen, tourism operators, and more—to strengthen community resilience.



The Nature Conservancy

Protecting nature. Preserving life.

WorldWide Office
4245 North Fairfax Drive, Arlington, VA 22301
nature.org